



Nandukkal, a fossil crab used in Siddha Medicine and its therapeutic usage – a review

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Article Info: Received 12 July 2015; Revised: 19 Aug 2015; Accepted 28 Aug 2015

ABSTRACT

Fossil folklore evinces therapeutic usage of fossils in ancient times. Many traditional system of medicines adopted the fossil usage. Siddha medicine is one of the oldest medical system in the world. It mention about the therapeutic usage of fossil named "Nandukkal". This articles reviews about the fossils, types, its therapeutic usage and fossil used in Siddha medicine.

Keywords: Nandukkal, Fossil, Siddha medicine, Parpam

1. INTRODUCTION

Fossils are the remains of plant or animal of pre historic life [1]. These are entombed under several layers of mud or sand which with time turned into sedimentary rocks due to great pressure. The hard parts those were resisting to decay transformed into fossils. The shells, bone, teeth are the most common parts of animals found fossilized. In the natural process of burial, it undergoes various chemical, physical changes with marked alteration in their mineral content. There may be extra deposition of minerals from the soil over these structures. Fossils are of two types, i.e. trace fossils and body fossils [2]. Trace fossil is defined as the plant or animal actually that have preferred on rock. Ex dinosaur trails, dungs etc. Body fossil is defined as fossilization of organic plant or animal. Usually bones of animals are found as body fossils. Fossils are determined and categorized with respect to time. These are found in rock layers in order of age. Oldest fossil found in deep and newer fossil are found superficial than the -

older one. These are found in all sizes. The study of fossil is called as paleontology.

Ammonites, Belemonites, bivalves, Echonoids, Cricoids, Trilobites are some of the types of fossils. In Asia, Africa and Europe, Belemonites, Ammonites and Trilobites are used [3]. Many tales and myths are reported in different civilization around the world. In spite of mysterious facts, fossils are used for alleviate diseases too. Paleontological works have been augmented in past centuries studies about fossil folklore are still left over.

Fossil folklore is one of the evidences to expose the relationship between human and fossil in ancient times [4]. The ideology behind the medicinal use of fossils is based on law of signatures. Shells of Jurassic oyster – Gryphaea was used cure joint pains as it contorted shape resembles painful joints [5]. Bladder like shaped spines of Jurassic echinoid balanocidous was used to treat urinary diseases like urolithiasis [6]. Among the fossils, trilobites have

been used for traditional medicinal purpose in Asia. Trilobites fossils are dated 500 million years ago at Cambrian period. It comprises about 20000 species of anthropods. Their size range from 1 mm to 1 meter in length. The modes of living in anthropods are diversified [7].

Siddha medical system is one of the oldest traditional heritage system widely practiced in South India [8]. Gunapadam (Siddha Pharmacology) deals with detailed study of Siddha drugs. Based on their origin, raw drugs are categorized as materials of plant (Mooligai Vakuppu), mineral (Thathu Vakuppu) and animal origin (Jeeva Vakuppu). Siddha literature describes 220 minerals under four main groups Ulogam (Metals) – 11, Karasaram (Salts) -25, Patanam (Arsenic and Mercurial compounds) -64 and Uparasam (Other minerals) -120. The usage of fossils in Siddha medicine is found under the classification of Uparasam. Fossil crab stone is treated as one of the minerals in Siddha medicine and it is grouped under other minerals category [9]. This paper reviews about the usage of fossil crab in Siddha medicine and its therapeutic values.

2. REVIEW OF LITERATURE

Siddha literature mentions the source of fossil crab as sea shore (Figure 1).

2.1. Purification

Limestone and fuller's earth are mixed in water and allowed to settle for some time. The clear solution is then taken out. Fossil stone crab is then placed in this solution and heated for three hours. The fossil stone crab is then taken out and washed in water to get purified [10].

2.2. Nandukkal Parpam

The purified fossil stone crab is ground with radish juice Figure 2, dried and then ground with the juice of sirupeelai [Aerva lanata (Figure 3)] and dried to obtain the parpam and given in the dosage of 65 mg to 260 mg with Juices or decoction of watery plants. It is indicated for the treatment of urinary retention and urinary calculus [11].

2.3. Other therapeutic uses of Nandukkal

Nandukkal has been used in diversified diseases. It has been used for treating urinary disorders, mental disorders, Musculo skeletal disorders, dermatological disorders, gastro intestinal disorders, ophthalmological disorders, venereal diseases, all kinds of toxic bites and fever [12]. The therapeutic uses is listed in the

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2.7. Spectroscopic analysis of Nandukkal Parpam

Spectroscopy analysis of Nandukkal parpam shows that the medicine contains calcium and iron as major composition and sodium and silicon in minor composition. Aerva and radish juice acts as an inhibitor for urinary crystals [13].

2.8. Pharmacological study on Nandukkal parpam

Ethylene glycol induced calcium oxalate deposition in kidney of murine models (wistar rats) has significantly reduced the calculi by administration of Nandukkal parpam [14].

3. DISCUSSION

The evidence of use of fossils in Siddha system prevails only on fossil crab. No other fossils are mentioned in Siddha literature. The period of existence of its usage is not mentioned in literature. The manuscript "Kal Nandu Soothiram" obtained from Literary Research Documentation Department, Siddha Central Research Institute, Chennai is an old manuscript which is not in print. It describes about



Figure 1: Nandukkal – Fossil Crab



Figure 2: Aerva lanata



Figure 3: Raphaneus sativus



Figure 4: Borax



Figure 5: Boerhaavia diffusa



Figure 6: Trianthena



Figure 7: Crataeva magna



Figure 8: Cuminum cyminum



Figure 9: Merremia marginata



Figure 10: Indigofera



Figure 11: Canavalia gladiata



Figure 12: Ophiorrhiza mungos



Figure 13: Daemia extensa



Figure 14: Citrus limon



Figure 15: Tabernaemontana



Figure 16: Moringa oleifera

Table 1. Other therapeutic use of Nandukkal

S. No	Adjuvant	Therapeutical Indications
1.	Decoction of Vengaram (Borax - Figure 4)	Strangury, calculus, anuria, dysuria and morbid growth of flesh.
2.	Honey	13 types of delirium
3.	Decoction made of the roots of Mookarattai (Boerhaavia diffusa – Figure 5), Charanai (Trianthema portulacastrum- Figure 6) and the bark of mavilingam (Crataeva magna – Figure 7)	80 types of vatham, including kuthiraivatham, yanaivatham, uravatham
4.	Decoction of Seeragam (Cuminum cyminum – Figure 8)	Sixty four types of fevers
5.	Paste of Elichevi leaf (Merremiae marginata – Figure 9)	Diabetes caused due to vatha, pitha, kapha is cured. Uterine disorders due to vayu will be cured.
6.	Sivanar Vembu (Indigofera aspalathoides- Figure 10) thailam	Eighteen types of leprosy
7.	Juice of sword been – Figure 11	Ascites
8.	Juice of keeripoondu (Ophiorrhiza mungos – Figure 12)	All kinds of toxicity
9.	Uthamathali (Daemia extensa – Figure 13)	Poisons of dog and fox Mania, kumaran kandavali, brama kandavali
10.	Elumitchai (Lemon juice – Figure 14)	Madness
11.	Juice of Nandhiyavattam (Tabernaemontana divaricata – Figure 15)	96 types of eye diseases
12.	Murungai Vithai (Drumstick seed – Figure 16) thailam	Night blindness
13.	Cow's milk	Sterility
14.	Nandhi mai (Prepared Siddha Medicine)	All types of venereal diseases

the various therapeutic usage of Nandukkal. Unlike other fossil folklore around the world, Siddha medicine describes a variety of therapeutic usage of Nandukkal. In this paper the author tries to cull out the medical information about the usage of Nandukkal (Fossil crab). 16 versus have been annotated and translated into English. The annotations of equivalence Tamil terms are in concurrence with the available clinical knowledge and from T.V. Sambasivam pillai dictionary. The source of fossil crab is still mysterious. Even though, the studies on Nandukkal proves that it is efficacious particularly in urinary calculi. More research studies should be initiated in focus on Nandukkal.

REFERENCES

1. http://www.nhm.ac.uk/natureonline/earth/fossils/fossil-folklore/what_are_fossils.htm.
2. <http://unmuseum.mus.pa.us/fossil.htm>.
3. GJB Moura, U. A. (2012), 'The First Report

on the Medicinal Uses of Fossils in Latin America', *Evidence-Based Complementary and Alternative Medicine*, 1-5.

4. Jean Le Loeuff, Chalida Laojumpon, S. S. & Suteethorn, V. (2012), 'Magic fossils – on the use of Triassic coprolites as talismans and medicine in South East Asia"10th Annual Meeting of the European Association of Vertebrate Palaeontologists.
5. Oakley, K. P. (1974.), *Folklore of fossils. Part I.*, 5(1-2), New York Paleontological Society.
6. Gould, S. (2000). *The Jew and the Jew Stone*, 6: 26-38, Natural History.
7. http://www.fossilmuseum.net/Tree_of_Life/PhylumArthropoda/ClassTrilobita.htm
8. TV, Sambasivam. Pillai. (1993), *Introduction of Siddha Medicine*, Directorate of Indian Medicine and Homeopathy
9. Thiagarajan (1968), *Gunapadam Thathu* -

Jeeva vaguppu II nd edition, Directorate of Indian Medicine and Homeopathy

10. Anonymous, Kal Nandu Soothiram, Unpublished manuscript
11. Ariponnammal, S. (2012), Spectroscopic Analysis of Siddha Medicine 'Nandukkal Parpam', *Research Journal of Recent Sciences* 1(5); 59-61.
12. N Arunai Nambiraj, Tmr Panicker, S. S. C. A. M. P. K. K. J. (2002), Prophylactic Effect Of 'Nandukkal Parpam' (A Siddha Combination Drug) On Ethylene Glycol Induced Calcium Oxalate Microlithiasis In The Kidneys Of Wistar Rats', *Bombay Hospital Journal*.44(3); 402-405.